FCMSSR Meeting Summary

The Federal Committee for Meteorological Services and Supporting Research (FCMSSR) met on Wednesday, December 1, 2004. The meeting was chaired by Dr. James R. Mahoney, Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator, on behalf of VADM Conrad C. Lautenbacher, Jr., USN (Ret), Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator. The following summarizes the proposed actions, discussions, and outcomes that resulted from the meeting:

1. Atmospheric Transport and Diffusion R&D Plan

Proposed FCMSSR Actions:

(1) Endorse the report's recommendations.

(2) All agencies with a vested interest in atmospheric transport and diffusion modeling to incorporate applicable recommendations into their planning, programming, and budgeting process. The OFCM-sponsored Working Group for Environmental Support to Homeland Security (WG/ESHS) will serve as a mechanism to cross feed and coordinate implementing actions among the agencies.

(3) OFCM pursue the report's recommendations for which they have primary responsibility. Efforts will be coordinated through the OFCM-sponsored Working Group for Environmental Support to Homeland Security.

Discussion Summary:

Dr. Walter Bach, Jr., Program Manager of the Environmental Sciences Division of the Army Research Office, and Cochair of the Joint Action Group for Atmospheric Transport and Diffusion Modeling/Research and Development Plan (JAG/ATD(R&DP)) presented a summary of the JAG's work and recommendations. In its August 2002 report, the Joint Action Group for the Selection and Evaluation of ATD Models (JAG/SEATD) made a number of recommendations for future ATD modeling support which were endorsed by FCMSSR. Among the recommendations was the need to address the research and development required to advance the state-of-the science of ATD modeling in support of critical homeland security/homeland defense activities. In October 2003, the OFCM established the JAG/ATD(R&DP), which was cochaired by Dr. Bach and Ms. Nancy Suski, DHS/S&T, to address this recommendation head on. The JAG/ATD(R&DP) report, *Federal Research Needs and Priorities for Atmospheric Transport and Diffusion Modeling,* is the result of a process that included consultation with subject-matter experts, including first responders and emergency managers; a careful analysis of research needs and current capabilities to respond to domestic incidents of national significance; a capability gap analysis; and the development of strategies to close the gaps. Dr. Bach presented nine recommendations, which resulted from this process, that have the potential to dramatically improve the existing Federal ATD modeling capability

FCMSSR Outcome:

After a brief discussion period, the FCMSSR members concurred with all of the proposed action items. The Federal Coordinator will convene a meeting of the Working Group for

Environmental Support to Homeland Security in January 2005 to discuss and pursue a plan of action to address the JAG's recommendations for which the OFCM has primary responsibility and to identify and discuss those recommendations that should be addressed by individual agencies.

In conclusion, Dr. Mahoney thanked Dr. Bach for the outstanding presentation and acknowledged that much more time could be spent on this topic. He noted that ATD modeling is of critical interest to the FCMSSR. He also noted that he had stressed the need for an end-to-end systems approach to consequence assessments during his luncheon address to the OFCM/DHS/S&T-sponsored Urban Meteorology Forum on September 22, 2004. ATD may be central to the approach, but if it were taken alone, it might not be sufficient to address the problem in an optimal manner.

2. Atmospheric Research: Priorities for the Next Decade

Proposed FCMSSR Action:
FCMSSR members will share their agency's priority programs and challenges/issues related to atmospheric research, and investigate opportunities to improve cooperation and collaboration among the agencies.

Discussion Summary:
Mr. Floyd Hauth, Senior Scientist, Science and Technology Corporation, supporting OFCM, led a discussion on *Atmospheric Research: Priorities for the Next Decade*. He noted that a common thread through the entire agenda at the most recent ICMSSR meeting was the need to develop a vision and implementation roadmap for the supporting research enterprise of the Federal meteorological community. Mr. Hauth stressed that there is a need to tie future research efforts in science, technology, and transition mechanisms to operational and societal requirements. There are both push and pull elements in atmospheric research requirements. "Pull" requirements are the more traditional form that originates from user needs that are validated through federal agency prioritization and budget processes. "Push" requirements can result from unanticipated science and technology discoveries or in response to extraordinary weather and climate impacts on local, regional, or national scales. He highlighted a number of key areas such as urban meteorology, homeland security, mesoscale/ microscale processes, aviation weather, weather information for surface transportation, and tropical cyclones that may require attention. He also discussed the challenges the community faces, regarding data assimilation and data management, as the size of future data sets increase by orders of magnitude, and the strategy the ICMSSR has adopted to address those challenges.

Dr. Mahoney kicked off the discussion period by noting that the transition from research to operations continues to be a tremendous challenge. He serves on the Roundtable for Science and Technology for Sustainability for the National Academies. During a recent 2-day meeting, the broad theme was the transition from research to operations, and the multi-sector group reviewed case studies of successful projects. The meeting attendees noted that the Federal Government performance reporting system that complies with the Government Performance and Results Act (GPRA) doesn't include a performance

measure for interagency work. There persists within program management offices a bias against joint programs because of the perceived risk of failure if a participating agency pulls out of the program.

Dr. Kathie Olsen, Office of Science and Technology Policy, noted that the Global Earth Observing System is an integrated system-of-systems and as such is a high priority interagency program.

Dr. Maureen McCarthy, the DHS/S&T representative, made the comment that from DHS's perspective one of the biggest challenges is urban dispersion modeling. Based on DHS experience to date, it is important to understand the different modeling systems and to quantify and communicate the uncertainty associated with products provided by each modeling system to the decision maker. She stated the need to understand all of the modeling capabilities for urban dispersion and to identify the gaps in capability. ATD modeling systems should be robust enough to provide information even if the source term is not fully known, and we need to build a knowledge base of information for specific sites. She cautioned that the use of ATD test beds alone to do this could be prohibitively expensive and that a tradeoff analysis might show that this could be done through the use of modeling and simulations in conjunction with the end-user –"…listen to the user, the user will tell you what is needed."

Ms. Jocelyn Mitchell, the NRC's representative, explained the ATD JAG members recommended that ATD test beds be implemented in some urban areas because observation and modeling systems need to be developed together to ensure concurrent, converging efforts to narrow the modeling gap which exits at the urban scales. These test beds are multiple use systems that would benefit a community of users. Dr. Mahoney agreed that there is certainly a role for ATD test beds as work continues to move forward.

Dr. S. T. Rao, the EPA representative, noted that there are hundreds of ATD modeling systems but that without observational data and agreed upon methods with which to evaluate their performance there is no way to know how appropriate they are for application in the urban environment. The common objective of the ATD modeler and the user is to minimize the risk of making a bad decision.

Brig Gen David L. Johnson, USAF (Ret.), the DOC member, added, now that NOAA's "Fair Weather" policy is on the street, it is a multi-sector challenge that requires orchestration. Their challenge will be to orchestrate the different sectors (public, private, academic…) contributions toward a common purpose.

Mr. Alan Shaffer, the DOD member, noted that he perceives they have a big challenge relative to National priorities in that any investment must be rationalized. The question is: how do we build a framework within which to make fiscal decisions based on potential payoffs? How do we rationalize the investment?

Mr. Norman Fujisaki, the DOT member, noted that forecast accuracy is central to the challenges they face in modeling a national system to react to the nation's weather. He also noted that ATD R&D could have significant applicability for DOT.

FCMSSR Outcome:
FCMSSR members were very supportive of the need for further interagency collaboration efforts. FCMSSR members will support R&D needs and requirements based on agency priorities and will continue to identify issues and concerns that are necessary for the development of capabilities required to realize societal benefits. Federal requirements and capabilities in key areas, like data management and data assimilation, need to be surveyed and further addressed. FCMSSR will also support and facilitate opportunities for the transition of research into operational applications. Further comments and suggestions by members should be provided to the Federal Coordinator by January 10, 2005, to assist the OFCM-sponsored Committee for Cooperative Research in the planning and development of a vision and implementation roadmap for the supporting research enterprise of the Federal meteorological community for the next decade.

3. Space Weather Program Assessment

Proposed FCMSSR Action:
FCMSSR concurrence to undertake a comprehensive review of the National Space Weather Program:

- To quantify our progress toward meeting our goals in observations, research, modeling, transition of research to operations, and education and outreach;
- To see if we are on target and moving in the direction pointed to by the Strategic Plan; and
- To determine whether our strategic goals should be adjusted at this time based on emerging/evolving requirements.

The review methodology will be developed by the Committee for Space Weather and approved by the National Space Weather Program Council.

Discussion Summary:
Dr. Ernest Hildner, Director of NOAA's Space Environment Center and Cochair of the OFCM-sponsored Committee for Space Weather, led the discussion of this agenda item. Dr. Hildner noted the significant successes of the National Space Weather Program (NSWP) thus far. However, the program is nearing the end of the 10-year period which was addressed in the program's strategic and implementation plans, and it's time to perform an interagency assessment to look at our progress toward meeting our goals and to see if we are still on target and moving in the proper direction or whether our strategic goals should be adjusted.

The consensus of the FCMSSR members was to support the need for the assessment but to align its outcome, or interim outcome, with the fiscal planning cycles of most agencies to better facilitate budgetary planning.

FCMSSR Outcome:
All proposed actions were approved by the FCMSSR members.

The Federal Coordinator set a target date of February 2005 to have the National Space Weather Program Council (NSWPC) meet and approve the Committee for Space Weather (CSW) assessment plan guidance, regarding who and how the assessment will be completed, and a target of September 2005 to have at least interim assessment results ready for distribution to the FCMSSR members to facilitate their budgetary planning processes.

4. Climate Change Science Program Update

Proposed Action:
FCMSSR members desired a continuous Climate Change Science Program (CCSP) update in order to facilitate agency planning and execution of efforts in support of the program guidance.

Discussion Summary:
Dr. Mahoney presented an update of the U.S. Climate Change Science program. He noted that the key challenge is to slow, stop, and reverse the growth of greenhouse gas emissions in the U.S. The administration has committed $4.4 billion per year for the federal science and technology program in support of this effort. The thrust of the science/policy nexus is for science to inform rather than drive policy. To do this an open and transparent process is essential. Within the program, synthesis and assessment guidelines will be released soon. In addition, *Our Changing Planet*, FY06 edition, is underway and scheduled for release in late March 2005. This edition will present the CCSP program and budget organized according to 5 goals and 21 sub goals in the CCSP strategic plan. It will also present for the first time a fully integrated budget for the 13 CCSP agencies. Many challenges lie ahead for the CCSP program, particularly those related to the budget process and delivering the best possible science to inform decision makers.

FCMSSR Outcome:
FCMSSR members will continue to stay abreast of the CCSP and will coordinate priorities for atmospheric requirements through OFCM for inclusion into the CCSP.